UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/583,784	05/31/2000	Marcos N. Novaes	POU9-2000-0009-US1	4195

7590 01/14/2004	EXAMINER
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ART UNIT	PAPER NUMBER
2175	16

DATE MAILED: 01/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/583,784	NOVAES ET AL.
	Examiner	Art Unit
	Tony Mahmoudi	2175

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>23 October 2003</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application)
since a specific reference was included in the first sentence of the specification or in an Application Data Sheet.
37 CFR 1.78.

    a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific
reference was included in the first sentence of the specification or in an Application Data Sheet 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other:

DETAILED ACTION

Remarks

1. In view of the Appeal Brief filed on 23-October-2003, PROSECUTION IS HEREBY

REOPENED. New grounds of rejection are set forth below.

   To avoid abandonment of the application, appellant must exercise one of the following

two options:

   (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37

CFR 1.113 (if this Office action is final); or,

   (2) request reinstatement of the appeal.

   If reinstatement of the appeal is requested, such request must be accompanied by a

supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or

other evidence are permitted. See 37 CFR 1.193(b)(2).

Remarks

2. In response to communications filed on 23-October-2003, claims 1-25 are presently pending

in the application.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6, 11-13, and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by

TorbjØrnsen et al (U.S. Patent No. 5,555,404.)

As to claim 1, TorbjØrnsen et al teaches a method of recovery from failures within a

shared nothing distributed computing environment (see Abstract, see column 3, lines 53-63,

and see column 6, lines 9-11), the method (see column 6, lines 33-43) comprising:

detecting a failure (see column 10, line 63 through column 11, line 14) within the shared

nothing distributed computing environment (see Abstract, and see column 3, lines 53-63);

and

automatically recovering from the failure (see column 5, lines 47-55, where "recovery

from failure" is read on "corrective on-line repair", and see column 11, line 66 through

column 12, line 6), wherein one or more transactions affected by the failure are automatically

executed to completion without rolling back the one or more transactions and without

requiring a reposting of the one or more transactions (see column 17, lines 29-37, and see

column 18, lines 14-20.)

As to claim 2, TorbjØrnsen et al teaches a system of recovery from failures within a

shared nothing distributed computing environment (see Abstract, see column 1, line 66

through column 2, line 5, and see column 6, lines 9-11), the system comprising:

means for detecting a failure (see column 10, line 63 through column 11, line 14) within

the shared nothing distributed computing environment (see Abstract, and see column 3, lines

53-63); and

means for automatically recovering from the failure (see column 5, lines 47-55, where

"recovery from failure" is read on "corrective on-line repair", and see column 11, line 66

through column 12, line 6), wherein one or more transactions affected by the failure are

automatically executed to completion without rolling back the one or more transactions and

without requiring a reposting of the one or more transactions (see column 17, lines 29-37,

and see column 18, lines 14-20.)

As to claim 3, Torbjørnsen et al teaches at least one program storage device (see column

4, lines 9-21) readable by a machine (see figure 3), tangibly embodying at least one program

of instructions executable by the machine to perform (see column 18, lines 15-17) a method

of recovery from failures within a shared nothing distributed computing environment (see

Abstract, see column 3, lines 53-63, and see column 6, lines 9-11), the method (see column 6,

lines 33-43) comprising:

detecting a failure (see column 10, line 63 through column 11, line 14) within the shared

nothing distributed computing environment (see Abstract, and see column 3, lines 53-63);

and

automatically recovering from the failure (see column 5, lines 47-55, where "recovery

from failure" is read on "corrective on-line repair", and see column 11, line 66 through

column 12, line 6), wherein one or more transactions affected by the failure are automatically

executed to completion without rolling back the one or more transactions and without

requiring a reposting of the one or more transactions (see column 17, lines 29-37, and see

column 18, lines 14-20.)

As to claims 4, 11, and 18, Torbjørnsen et al teaches wherein the shared nothing

distributed computing environment (see Abstract, see column 1, line 66 through column 2,

line 5, and see column 6, lines 9-11) comprises a processing group (see column 1, line 66

through column 2, line 13, where "processing group" is read on "node group") with a

plurality of members (see column 3, lines 2-40, and see column 13, lines 11-19, and see

figure5 5 and 7A), and wherein the detecting comprises detecting a failure of at least one of

the plurality of members (see column 10, line 63 through column 11, line 13.)

As to claims 5, 12, and 19, Torbjørnsen et al teaches wherein the recovering comprises

synchronizing messages regarding the one or more transactions among surviving members of

the processing group (see column 5, line 56 through column 6, line 8, where "synchronizing

messages" is read on "generating replicas simultaneously", and "surviving members" is read

on "remaining available nodes".)

As to claims 6, 13, and 20, Torbjørnsen et al teaches wherein the recovering further

comprises committing the one or more transactions (see column 6, lines 1-8, where

"committed" is read on "stored".)

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

6. Claims 7-10, 14-17, and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Torbjørnsen et al (U.S. Patent No. 5,555,404) in view of Badovinatz et al (U.S. Patent

No. 5,805,786.)

As to claims 7, 14, and 21, Torbjørnsen et al teaches wherein at least one member of the

processing group survives the failure (see column 17, lines 26-33, and see column 18, lines

63-64.)

Torbjørnsen et al does not teach wherein the recovering comprises electing a coordinator

from among the at least one surviving member.

Badovinatz et al teaches recovery in a distributed computing environment (see Abstract),

in which he teaches wherein the recovering comprises electing a coordinator from among the

at least one surviving member (see column 6, lines 1-7.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the

time the invention was made to have modified Torbjørnsen et al to include wherein the

recovering comprises electing a coordinator from among the at least one surviving member.

It would have been obvious to a person having ordinary skill in the art at the time the

invention was made to have modified Torbjørnsen et al by the teaching of Badovinatz et al,

because wherein the recovering comprises electing a coordinator from among the at least one

surviving member, would enable the system to pass the duties of the recovery node to at least

one of the nodes which survived the failure, in order for the surviving node to recover the

failed transactions.

As to claims 8, 15, and 22, Torbjørnsen et al as modified teaches wherein the recovering

further comprises receiving by the coordinator a list of one or more transactions from other

surviving members (see Badovinatz et al, column 6, lines 15-23.)

As to claims 9, 16, and 23, Torbjørnsen et al as modified teaches wherein the recovering

further comprises receiving by the coordinator any commit protocol messages (see

Badovinatz et al, column 4, line 58 through column 5, line 2) for the one or more transactions

the coordinator does not already have (see Badovinatz et al, column 6, lines 50-67.)

As to claims 10, 17, and 24, Torbjørnsen et al as modified teaches wherein the

coordinator initiates the commit protocol for the one or more transactions (see Badovinatz et

al, column 4, lines 35-41, and column 6, lines 42-46.)

7. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Torbjørnsen et al

(U.S. Patent No. 5,555,404) in view of Duprey et al (U.S. Patent No. 6,671,705.)

As to claim 25, Torbjørnsen et al teaches the shared nothing distributed computing

environment (see Abstract, see column 3, lines 53-63, and see column 6, lines 9-11.)

Torbjørnsen et al does not teach a distributed synchronous transaction system, and wherein the method comprises a failure recovery method for the distributed synchronous transaction system.

Duprey et al teaches a remote mirroring system (see Abstract), in which he teaches a distributed (see column 1, lines 22-24) synchronous transaction system (see column 8, lines 14-23, and see column 9, lines 47-50), and wherein the method comprises a failure recovery method for the distributed synchronous transaction system (see column 11, line 60 through column 12, line 2, and see column 15, lines 49-60.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Torbjørnsen et al to include a distributed synchronous transaction system, and wherein the method comprises a failure recovery method for the distributed synchronous transaction system.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Torbjørnsen et al, by the teaching of Duprey et al, because including a distributed synchronous transaction system, and wherein the method comprises a failure recovery method for the distributed synchronous transaction system, would increase the efficiency of recovering transactions after a node failure, since "in synchronous remote mirroring, the master storage unit ensures that the host data has been successfully written to all slave storage units in the mirror before sending an acknowledgment to the host, which results in relatively high latency, but ensures that all slaves are updated before informing the host that the write operation is complete", as taught by Duprey et al (see column 2, lines 18-23), and because "in synchronous remote mirroring,

the slave image can differ from the master image by at most one write request, since the master storage unit updates all slave storage units for each write request. However, in asynchronous remote mirroring, the slave image can differ from the master image by more than one write request, since the master storage unit updates the slave storage units asynchronously with respect to the write requests", as taught by Duprey et al (see column 9, lines 47-54.)

Response to Arguments

8. Appellants' arguments filed on 23-October-2003 with respect to the rejected claims in view of the cited references have been fully considered but they are moot in view of the new grounds of rejection.

Conclusion

9. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Tony Mahmoudi whose telephone number is (703) 305-4887. The examiner can normally be reached on Mondays-Fridays from 08:00 am to 04:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dov Popovici, can be reached at (703) 305-3830.

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December 31, 2003

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